THE VETERINARY RECORD

FOUNDED BY WILLIAM HUNTING, F.R.C.V.S., 1888.

No. 41. OCTOBER 7, 1944 VOL. 56.

An Outbreak of Bovine Tuberculosis due to Udder Irrigation *

D. McFARLANE, J. S. GARSIDE, P. S. WATTS AND J. T. STAMP

FROM THE DEPARTMENT OF PATHOLOGY AND BACTERIOLOGY, ROYAL (DICK) VETERINARY COLLEGE, EDINBURGH,

and

THE HANNAH DAIRY RESEARCH INSTITUTE, KIRKHILL, AYR

Preliminary investigation of an outbreak of tuberculosis in an attested herd suggested that the high incidence had resulted primarily from irrigation of the udders of certain of the animals with apparatus contaminated with *M. tuberculosis*. The circumstances in this outbreak were very favourable for study and in view of the seriousness of the outcome in this instance and the widespread application of udder irrigation in cases of mastitis, it was decided to carry out a full investigation.

HERD HISTORY

At the commencement of the investigation, the herd consisted of 87 animals, 33 in the milking herd, 22 heifers, 17 stirks, 14 calves and one bull. The herd had been attested for five years and there had been no reactors or breakdowns. At the routine tuberculin test in May, 1943, 49 of the 87 animals reacted positively. Of the 33 milking cows, 32 reacted; the only bull was positive; the 22 heifers were negative; three of the 17 stirks and 13 of the 14 calves showed a positive reaction.

Consequent upon this tuberculin test suspicion was aroused of enlarged and indurated quarters in six animals. Bacteriological examination of the milk of these animals showed tubercle bacilli in each, including the only non-reactor in the milking herd.

It is necessary here to consider certain aspects of the herd management and history. The milking herd, calves, stirks and bull were on one farm, the heifers on another. *The milch cows* were kept in two byres, the bull being in one of them, but all grazed together. The standard of husbandry was good. There was a bad record of mastitis and udder irrigation had been practised on the majority of cases, *e.g.*, three times in the spring and summer of 1942, and on each occasion a clinical cure had been affected. In the autumn of 1942 it was decided to irrigate 21 quarters of 16 cows showing clinical mastitis, which would be dry in October and November and were due to calve in the spring. Each animal was irrigated twice with a fortnight's interval between the two. On each occasion the 16 animals were irrigated on the same day and in the same order. Shortly after, the farmer noted a progressive enlargement and induration of all irrigated quarters which did not yield to treatment, including further irrigation by the farmer. On calving, three of the animals were slaughtered owing to the udder condition, while the remaining 13 produced milk which was bulked and used for feeding the spring calves and for human consumption. At varying intervals after calving, seven of the irrigated cows were slaughtered because of the udder disease, *i.e.*, progressive enlargement with induration. No evidence of tuberculosis in these animals was seen by the meat inspector at the routine abattoir examination. The six irrigated cows remaining in the herd at the time of our investigation were those found to be excreting tubercle bacilli in the milk. All showed marked induration and enlargement of the irrigated quarters. It is interesting to note that of these six animals the one (TBO 1) showing the most severe tuberculous mastitis and general emaciation was the only milch cow not reacting positively to the tuberculin test. The 17 stirks born in the spring of 1942 were kept in a separate paddock and had not been fed on milk from the herd since the late summer of 1942, *i.e.*, before the suspected irrigation. The three positive reactors in this group were the three oldest and they alone of the stirks had run with irrigated cows in the autumn of 1942. The 14 calves born in the spring of 1943, 13 of which were positive reactors, were kept in a separate pen. The infection in these animals was obviously due to the feeding of bulked milk from the milking herd. The bull was kept in a byre with the cows and had contracted tuberculosis as shown by the test. The 22 heifers were kept on a separate farm and were negative to the tuberculin test. They were served by the affected bull.

* This investigation was made possible by an Agricultural Research Council Special Grant.

MATERIAL AND METHODS

Pathological and bacteriological examination of the six remaining irrigated and two non-irrigated animals was carried out. Seven cows were killed at the local slaughterhouse and one at the local knackery, under our supervision. The carcase lymph glands were examined by multiple incision and any suspicious or tuberculous glands were kept for microscopical examination. The tongue, trachea, heart and lungs, *i.e.*, the pluck, were brought back to the laboratory, as were the intestines, mesentery and udder. The lungs and udder were perfused with 4 per cent. formaldehyde and when fixed were cut in a ham slicing machine into slices, about 1 cm. thick. The material so obtained was examined macroscopically and microscopically. The intestines were slit from end to end and examined macroscopically by two workers, any suspicious lesion being kept for histological examination.

Milk samples from each quarter, obtained immediately before slaughter, were examined for the presence of tubercle bacilli. This was done by centrifuging 50 c.c. of each sample for 30 minutes at 3,000 r.p.m., making smears of the deposit, and then dividing it into two parts, one to be used for cultural purposes and the other for guinea-pig inoculation.

Primary cultures were obtained by treating half of each deposit with 5 per cent. oxalic acid for 30 minutes at 37° C. followed by centrifugation. This deposit was then seeded on to plain egg yolk and 5 per cent. glycerin egg yolk. Biological examination was carried out on the material and the pathogenicity of the tubercle bacilli recovered was tested in rabbits.

PATHOLOGICAL FINDINGS. (*See Table I overleaf*)

The six irrigated cows (TBO 1-2-3-5-6-7) all show a very similar picture. The primary site of entry of the tubercle bacilli is the udder in all cases; the lesions in this organ are massive and obviously much older than any others in the body. Histologically the lesions consist of a diffuse caseous galactophoritis variably associated with either caseation or productive lobular changes in the irrigated quarters; very early tuberculosis is noted in non-irrigated quarters. The regional lymph glands in all cases show tuberculosis. In five of the cows there is an inhalation infection; the lungs show very early tuberculous bronchopneumonia with involvement of the regional lymph glands. Variations in this basic picture are seen; thus in two cases the retropharyngeal glands and tonsils are involved, in three the mesenteric glands show a few very early tubercles and in two cases post-primary haematogenous dissemination has taken place as shown by miliary tuberculosis of the lungs (TBO 5) and tuberculosis of the right prescapular lymph gland (TBO 2). In one case (TBO 6) the udder and regional glands alone show lesions.

The two non-irrigated cows (TBO 4 and TBO 8) show no udder lesions, but the other features are the same, *i.e.*, early inhalation tuberculous bronchopneumonia and tuberculous lymphadenitis of regional lung glands. In one case (TBO 4) there are no other lesions, but the other (TBO 8) shows retropharyngeal, tonsillar and mesenteric gland lesions as well as the bronchopneumonia. There is also present in this case an old ossified subpleural lesion showing no evidence of flaring up.

BACTERIOLOGICAL FINDINGS

Acid-alcohol-fast organisms were readily found in smears of the deposits from milk and the findings agreed fairly closely with the results of the cultural and biological examinations. (See Table II.) All the recovered organisms produced growths simulating the bovine type, requiring six to eight weeks' incubation before the growths could be assessed, and in no instance was a growth profuse. At the end of eight weeks' incubation cultures appeared as thin, finely granular, greyish-white films. In some instances a few discrete heaped-up excrescences of the film about $\frac{1}{2}$ mm. in diameter were present. Both media were equally satisfactory for the growth of the organisms, except for TBO 7, when better results were forthcoming on the glycerin medium. Subsequent subcultures of all strains from the primary growths on plain egg yolk medium, egg yolk, 5 per cent. glycerin egg, 5 per cent. glycerin serum, nutrient broth and 5 per cent. glycerin broth, failed to produce any variations from the typical dysgonic growth of the bovine type of *Mycobacterium tuberculosis*. In no instance was there enhanced growth on the glycerin media, and on the solid media the limit of growth was a thin, effuse, finely granular film with no pigmentation. Growth was very poor in the flasks of nutrient broth and 5 per cent. glycerin broth, although in the nutrient broth TBO 3, TBO 5 and TBO 6, produced a thin, finely granular veil over half the

Table I

Number	Lungs		Intestines		Udder		Carcase Lymph Glands	Remarks
	Substance	Regional Lymph Glands	Substance	Regional Lymph Glands	Substance	Regional Lymph Glands		
TBO 1 I.C.	Early broncho-pneumonia of all lobes	Caudal mediastinal-marked but early caseation	Negative	Negative	Massive caseous tuberculous galactophoritis in irrigated quarters	Very large with small tubercles	Negative	The udder lesion is primary
TBO 2 I.C.	Very early exudative tuberculous broncho-pneumonia in diaphragmatic lobes	Caudal and middle mediastinal glands, 3 - 4 early caseous tubercles	Negative	The mesenteric glands show three small caseous non-encapsulated tubercles	Massive caseous tuberculous lobular mastitis and galactophoritis in irrigated quarter	Very large and soft with a few miliary tubercles	Retropharyngeal glands and tonsils enlarged by early caseous tubercles. Iliac glands large and soft with microscopic tuberculosis. Right prescapular gland shows tuberculosis	The udder tuberculosis is primary. Haematogenous spread has been present, as indicated by involvement of the right prescapular lymph gland
TBO 3 I.C.	Very early exudative tuberculous broncho-pneumonia	Negative	Negative	Negative	As above	As above	Negative	The udder is primary
TBO 5 I.C.	Sub-acute miliary tuberculosis and very early exudative tuberculous broncho - pneumonia in one diaphragmatic lobe, pleurisy	Bronchial and mediastinal glands are enlarged and caseous	Negative	The mesenteric glands show a few early caseous tubercles	As above	As above	Retropharyngeal glands and tonsils enlarged and caseous. Iliac glands large and soft with caseous tubercles	The udder is primary with subsequent haematogenous spread and inhalation tuberculous pneumonia
TBO 6 I.C.	Negative	Negative	Negative	Negative	As above	As above	Iliac glands large and soft with caseous tubercles	The udder and its associated glands are the only tissues showing lesions in the body
TBO 7 I.C.	Very early exudative tuberculous broncho-pneumonia of the diaphragmatic lobes	Negative	Negative	A few small caseous nodules	As above	As above	Iliac glands as above	Primary udder tuberculosis with reinfection by inhalation
TBO 4 N.I.C.	Early exudative and caseous tuberculous broncho - pneumonia almost confined to the diaphragmatic lobes	Typical productive tubercles with early calcification and encapsulation	Negative	Negative	Negative	Negative	Negative	A non-irrigated cow showing primary inhalation tuberculosis
TBO 8 N.I.C.	(1) There is an old ossified nodule 1·5 cm. in diam. Sub-pleural in a diaphragmatic lobe. (2) Widespread sub-acute caseating broncho-pneumonia	Bronchial and mediastinal glands enlarged and caseous	Negative	Mesenteric glands show a few small lesions without capsules	Negative	Negative	Both retropharyngeal glands are enlarged and show tubercles and marked caseation and softening with distinct capsules. The tonsils show tubercles	A non-irrigated cow with a very old ossified lesion (probably tuberculous) and a more recent broncho-pneumonia

I.C. = Irrigated cow. N.I.C. = Non-irrigated cow.

surface of the medium after ten weeks' incubation. Similar growths occurred on the surface of 5 per cent. glycerin broth. The morphology of the organisms in smears from the plain egg yolk of both primary and secondary cultures was that of a short, stout, evenly staining bacillus, but from the glycerin media there were longer forms more akin to the human type, together with great variation in size of the cells and numerous beaded forms.

Cultures of the organism were recovered from the udders of all the irrigated cows (Nos. TBO 1-2-3-5-6 and 7), although not from all quarters. Thus TBO 7 was found to be excreting tubercle bacilli from all four quarters, TBO 1, 5 and 6 from three quarters, whereas TBO 2 and 3 were positive in one quarter only.

No tubercle bacilli were recovered from the udders of the two non-irrigated cows, TBO 4 and 8.

It was not possible to examine every quarter sample biologically by inoculation into two guinea-pigs and in the case of five animals the two quarter samples from one side of the udder had to be mixed together. Four guinea-pigs died shortly after inoculation, before results were possible (Nos. TBO 6 and 7). These did not affect the results, and in general the biological examination amply confirmed the cultural findings. All the positive animals died before the lapse of six weeks and showed at autopsy generalised tuberculosis. One culture from each of the positive udders was then tested for its pathogenicity in rabbits; 0·01 mgm. of a four weeks' old culture grown on egg yolk was inoculated into each rabbit, one rabbit for each culture. There was little difference in the pathogenicity of the various growths, so that although only one rabbit had been used for each culture, it was not considered necessary to repeat the tests. Strains TBO 1 and 5 caused the death of the rabbits on the 25th day after inoculation, TBO 6 and 7 on the 27th day, and TBO 2 and 3 were lethal after 28 and 30 days respectively. At autopsy all rabbits showed the typical lesions of miliary tuberculosis of the lungs, together with discrete necrotic foci in the kidneys and occasionally in the liver and spleen.

The slow growth, the lack of increased response to the addition of 5 per cent. glycerin, together with the death of rabbits within 25 to 30 days following the intravenous injection of 0·01 mgm. of culture, indicate that the tubercle bacilli recovered were typically bovine and fully virulent.

The findings are given in Table II.

Conclusions

That irrigation was responsible for the development of the tuberculous mastitis in the cows examined by us is clearly shown by the pathological and bacteriological examinations of these cases. The fact that primary tuberculous mastitis developed in each of seven irrigated quarters is clearly significant.

Further confirmatory facts can be given. The stirks born in the spring of 1942 received bulked milk from the herd and, apart from the three oldest animals, which later ran with the irrigated beasts, none developed tuberculosis. Since these calves were fed on bulked milk, it may be taken that tuberculosis of the mammary gland was absent from the herd during the summer of 1942, since Stamp (1943) has shown that all cases of mammary tuberculosis excrete tubercle bacilli in the milk. On the other hand, the 15 calves born in the spring of 1943, feeding on bulked milk from the herd after irrigation, were, with one exception, all positive reactors. This indicates that infection of the udder took place between the late summer of 1942 and the spring of 1943. Finally, there is the history that clinical symptoms rapidly followed the irrigation of the udders.

Table II

Number	Smears of Milk				Cultures. Primary Growth after 8 Weeks				Guinea-pig Inoculation				Pathogenicity to Rabbits. 0·01 mgm. Culture, i/v
	L.H.	L.F.	R.H.	R.F.	L.H.	L.F.	R.H.	R.F.	L.H.	L.F.	R.H.	R.F.	
TBO 1	—	+++	+++	+++	—	+++	+++ •	+++ •	+++		+++		Fatal after 25 days
TBO 2	±	—	+	—	—	—	+++ •	—	—	—	++	—	„ 28 „
TBO 3	—	—	—	—	—	—	—	+++ •	—	—	—	++	„ 30 „
TBO 4	—	—	—	—	—	—	—	—	—	—	—	—	—
TBO 5	—	—	+	—	—	+	+++ •	+	—		+++		„ 25 „
TBO 6	—	++	—	—	++	+++ •	+++	—	+++		Died early —		„ 27 „
TBO 7	—	—	—	—	++	+++ •	++	+	+++		Died early —		„ 27 „
TBO 8	—	—	—	—	—	—	—	—	—		—		—

— = No acid-fast bacilli present : no growth : no lesions.
+ = Few acid-fast bacilli present : slight growth : early lesions.
++ = Moderate number bacilli present : moderate growth : generalised lesions.
+++ = Large number acid fasts present : good growth : advanced lesions. • Irrigated quarter.

It may be argued that irrigation merely caused a flare up of a pre-existing mammary tuberculosis. This could not have been so because (1) in the six cases examined by us no tuberculosis was seen which could have been primary to the udder lesion, (2) in the seven irrigated animals killed previously no obvious lesions of tuberculosis were noted by the meat inspector. Finally, as pointed out above, none of the non-contact 1942 stirks fed on bulked milk from the herd in 1942 were positive reactors. Another remote possibility is that tuberculosis existed in the irrigated animals elsewhere in the body than in the udder and that irrigation caused a flare-up with localisation in the udder. Pathological examination, however, showed in every case that the mammary lesion was the oldest and most advanced in the body.

From the above it is clear that in six of the animals the irrigation caused tuberculous mastitis by the introduction of tubercle bacilli into the udder, either on the syphon or in contaminated irrigation fluid. It is highly probable that the ten irrigated cattle not seen by us were similarly affected and in that case the 21 quarters of the 16 irrigated cows were inoculated with viable tubercle bacilli and developed tuberculous mastitis. As regards the source of infection, it is almost certain that the tubercle bacilli were introduced into the herd by the irrigating apparatus. As we were too late to examine all the irrigated cows, this point cannot be completely clarified, since it is within the realms of possibility that an open case of tuberculosis, presumably of the udder, existed in the herd and that this udder was the first to be irrigated. The arguments against such an occurrence are very strong and have been given above.

Discussion

There are several important features which are worth emphasising. The rapid spread of tuberculosis in an attested herd is generally known and accepted. It is very well illustrated in this instance. Subsequent to the irrigation and development of tuberculous mastitis every beast in the milking herd and the bull, *i.e.*, 100 per cent. of in-contact animals, became infected, all within a period of six months. Udder tuberculosis, whether primary or secondary, from its "open" nature and the usual methods of milking, is probably the most dangerous form of tuberculosis to have in a herd. Tuberculous mastitis readily gives rise to tuberculosis of young stock, not only by their feeding on the tuberculous milk, but also from the habit of recently weaned animals sucking cows, whether in lactation or not. It is clearly recognised by competent clinicians that diagnosis of mammary tuberculosis by clinical examination is in a great many instances impossible. This difficulty was well shown in the present instance. The cows suffering from massive udder tuberculosis were examined routinely and terminally by a number of competent and experienced men, none of whom suspected tuberculosis until the tuberculin test was found to be positive; this is not an isolated incident. Stamp (1943) has pointed out that there are several types of tuberculous mastitis which could only be diagnosed during life by means of a biological examination or by means of a direct smear, and, in addition, that there are two types which would escape all but a most thorough *post-mortem* examination. The probability that a contaminated irrigating apparatus infected every quarter on which it was used indicates that the number of tubercle bacilli required to set up lesions in a dry quarter with a mild mastitis must be very low.

In view of the widespread use of irrigation in the treatment of mastitis, the ease with which the udder may be infected by tuberculosis and the difficulties of diagnosis of this condition, we feel that the strongest emphasis should be placed on the necessity for using a sterile teat syphon for every quarter irrigated and for taking the greatest care that the apparatus and fluid in use does not become infected by regurgitation or other means.

Summary

(1) It has been shown that irrigation was responsible for the introduction of tubercle bacilli and subsequent development of tuberculous mastitis in each of the seven irrigated quarters of six cows in a single herd. Fourteen additional quarters in the same herd, irrigated with the same apparatus and on the same day, developed a clinical condition similar to and probably identical with those examined by us.

(2) Every animal in contact with those irrigated developed tuberculosis, as shown by the tuberculin test. Thirteen of 14 calves fed on bulked milk from this herd developed a positive tuberculin reaction. Three stirks running with the cows when dry gave positive tuberculin reactions, probably from sucking the irrigated udders.

(3) The ease of infection of the bovine mammary gland with *M. tuberculosis* is pointed out and the great danger of mammary tuberculosis to the "in contacts" is emphasised.

(4) The frequent impossibility of clinical diagnosis of tuberculosis of the bovine mammary gland is stressed.

(5) The necessity for taking adequate precautions when irrigating udders is emphasised.

Acknowledgments.—Our thanks are due to the Local Veterinary Surgeon, the Divisional and Superintending Inspectors of the Ministry of Agriculture and the dairy farmer, whose co-operation made this investigation possible.

We are indebted to Mr. J. C. Rennie, A.I.M.L.T., M.R.S.A.(S.), for his indispensable assistance.

Reference—Stamp, J. T. (1943.) *J. comp. Path.* **53**. 220.

The Council of the Chartered Surveyors' Institution is sending a memorandum of criticisms and suggestions on the Town and Country Planning Bill to the Government. The well-being of farming is thought to be threatened by Clause 35, as it gives planning authorities the right to enforce restrictions which might upset the whole balance and working of a holding. The Council urges that the Ministry of Agriculture should be consulted before planning schemes are applied to farms and small-holdings.

Retention of the Foetal Membranes (Bovine)

W. W. LANG, M.R.C.V.S.
Brigg, Lincs.

In the report of the discussion (Central Veterinary Society) on "Principles Affecting Reproductive Functions," published in *The Veterinary Record*, February 5th, 1944, Mr. G. N. Gould is reported as follows: "In my opinion the removal of the foetal membranes should be considered a highly skilled operation, fraught with danger to the life of the dam and with definite danger to reproduction. . . . Attempts at manual removal are often ill-advised."

With these remarks the writer is in full agreement.

In earlier days in practice it was often disconcerting in many instances of manual removal to find the patient's condition much worse following the operation than before. This was explained by the late Mr. David Imrie, who stated his view that forcible separation of the membranes from the cotyledons brought about the formation of a much larger area of raw surface most favourable to rapid absorption of toxins. Consequently he had adopted salt solution as a uterine douche, and a waiting policy, with much better results. This irrigation is excellent but not so easily carried out with efficiency while the placenta is still retained.

For many years now the author has adopted the administration of common salt (1 lb. in four gallons of water per stomach tube by nasal route) with encouraging results: the temperature is reduced, the appetite improves and there is evidence of a preservative action on the membranes, all pointing to a reduction of infection though the membranes may still be retained, sometimes for days.

For a considerable period, too, this treatment has been adopted immediately on the conclusion of difficult parturition. General stimulation of the patient with renewed uterine contractions ensures the passing of the placenta within a few hours in over 95 per cent. cases, abortions excepted, while the swelling of the vaginal wall and lips is considerably less than one would expect. The use of the embryotome, too, is of the utmost value in counteracting the risks of injury and exhaustion.

On several occasions in recently calved cows with retention of one to two hours' duration, excellent results have been obtained by filling up the uterus with hot salt solution and leaving it there.

The above remarks apply also to the mare. Manual removal is rarely carried out now in this practice, nor do metritis and parturient laminitis occur as sequelae (the writer regrets a case of laminitis this year owing to lack of hot water for irrigation purposes).

It would appear to be a matter of choice whether one uses common salt or sodium bicarbonate internally by stomach tube: both are good. Along with either, stilboestrol is now administered with gratifying results at varying intervals and the early onset of oestrum, with all it implies, seems highly beneficial.

In this practice no difficulty has been encountered in the change over from manual to therapeutic removal of the retained placenta; a few words of one's hopes and desires for the benefit of the patient and the owners readily co-operate.

"SCIENCE KNOWS NO FRONTIERS"

In the Ministry of Information's recent publication called "The First to be Freed," and which describes the conditions found in Eritrea and Somalia, together with the British Administration of those territories, there appears a short paragraph which is worthy of reproduction.

After a catalogue of the appalling medical and sanitary conditions encountered, one may be pardoned for expecting a similar report on the veterinary services, but the following paragraph shows that the veterinary scientist who is true to his craft can command the respect and admiration of his one-time enemies:—

"Veterinary services are important in a country which at the last census was found to hold more than 1,000,000 cattle, 1,000,000 camels, 1,000,000 sheep and more than 3,000,000 goats. Although the majority of the Italian veterinary officers had retreated with the troops, the Department has been able to maintain the Merka Institute, which was engaged in research and the production of sera and vaccines. It has continued, too, the inoculation of camels against trypanosomiasis and of cattle against rinderpest and pleuropneumonia, two services introduced by the Italians, which the natives had already learned to appreciate. The Department had also had a hand in ensuring supplies of meat and milk for Mogadishu. It also collects and treats horses and mules for the Somalia gendarmerie. Those few members of the Italian veterinary staff who remained behind have shown themselves to be enterprising, reliable and conscientious, and their relations with the Administration have been based on mutual respect."

D. J. A.

THE VETERINARY RECORD
October 7th, 1944

THE DEVELOPMENT OF THE ANIMAL HEALTH DIVISION

SIX years ago the enlarged outlook of the State Veterinary Service was signalised by a change of name from the Diseases of Animals Division to the Animal Health Division of the Ministry of Agriculture. This decision was accompanied by an increase in the whole-time professional staff and the inclusion therein of the majority of veterinary officers attached to Local Authorities. At that time it was intimated that the whole-time veterinary personnel of the Division might be expected ultimately to reach a figure of 550. It now stands at about 360. These are reinforced in every district by large numbers of part-time veterinary officers who are in practice locally.

The full promise of the change effected in 1938 still remains to be secured, but the recent Food and Drugs (Milk and Dairies) Act at long last indicates the determination of the Government and Parliament to see that its veterinary personnel undertake important duties concerned with the production of milk of the highest quality and safety. These tasks are among those which the profession is competent to undertake, and we look forward with confidence to improvements in dairy health and in cleanliness and quality of milk, beneficial to producer and consumer alike.

Furthermore, the addition of such duties will go far to rekindle the spirit of service and enthusiasm which is so necessary for the progressive development of the Animal Health Division. It will also counteract to some extent the feeling of disappointment engendered by the realisation that neither poultry nor artificial insemination duties seem likely to form a part of the work of the Division.

Nevertheless, the task before our State veterinary colleagues is a great one and we would like to assure the heads of the Division that they can rely upon the profession's full support. Criticism we shall express no doubt from time to time, but these criticisms will be offered in a constructive spirit designed to ensure efficiency, harmony and the conditions propitious for the advancement of the work of the Ministry.

In view of an expected early start upon the duties envisaged under the Milk and Dairies Act, we remind our colleagues of the interest which both Parliament and the nation have already shown in this task before the profession and express our confidence in its courageous prosecution.

* * * * *

PROFESSIONAL EDUCATION

WE publish in this issue a summary of the Report of the Goodenough Committee on Medical Schools. It is an authoritative document and its main conclusions, which are set forth in no uncertain terms supported with much evidence, deserve the careful study of the veterinary as well as the medical profession.

The Goodenough Committee shows how essential it is that pre-clinical subjects should lead naturally on to clinical medicine. To achieve this they consider that a good proportion of the teachers in the pre-clinical subjects must be medical men and that they must be carrying on research in collaboration with their clinical colleagues. In the same way we would emphasise that a good proportion of those teaching pre-clinical subjects to veterinary students must be veterinary surgeons carrying out research, in their subjects, on the various species of domestic animals.

The Committee also recommends that all undergraduate education should be carried out in universities, internal examinations should be largely substituted for external and that university degrees should be registrable qualifications. There are differences as well as similarities between the problems confronting those concerned with veterinary and medical

education, one of the chief being that most universities have well-established medical faculties.

We have no doubt, however, that all members of the profession, and particularly those in responsible positions, will study carefully the conclusions reached by the Goodenough Committee and ponder to what extent they apply to the special conditions of veterinary education.

REPORT

[The Interdepartmental Committee on Medical Schools. (Chairman: Sir William Goodenough.) H.M. Stationery Office: Price 4s. 6d.]

The Report of the Interdepartmental Committee on Medical Schools, which has recently been published, is an authoritative document extending to over 300 pages. The Committee was under the chairmanship of Sir William Goodenough, and there were nine other members of whom eight had medical qualifications and teaching experience in Great Britain. Much of the report deals with subjects having little or no relationship to veterinary education, but some of its major sections deal with problems very similar to those now being discussed following the publication of the Second Report of the Loveday Committee on Veterinary Education.

Both committees make the same major criticisms. Too much attention in the educational system and in practice is devoted to curative medicine and not nearly enough to preventive medicine and the promotion of health. Conditions vary widely but professional staff, technical assistance, facilities and money at the different veterinary and medical schools are all inadequate to achieve the desired educational standard or to carry out the research work without which this standard can never be reached.

The central recommendations of both reports are that the training of all students should be undertaken in university schools and that university degrees should be registrable qualifications. The Goodenough Committee deal at length with these subjects. They say that, "Underlying our recommendations on undergraduate medical education is the conception of a university medical teaching centre. . . . We recommend that in future only medical schools that are integral parts of universities should undertake the training of undergraduate medical students. To agree to the training of medical students in institutions which are not parts of universities is to support the belief that doctors can be produced in intellectual circumstances that are not the best that the community provides. We cannot accept such a belief. Medicine is a branch of human thought and activity that demands and provides opportunities for the fullest development of humanistic and scientific talents. It is a branch of higher learning, and the most favourable training ground for those who follow it is in the recognised centres of higher learning—the universities. We are certain that it is as full participants in the life of universities, having close associations with those following other branches of learning, that teachers of medical students will receive the strongest stimulus to give of their best, and medical students will be encouraged to develop those qualities of mind and character that make a good doctor. A university medical school presents the most favourable conditions for maintaining and improving educational standards; for securing a consistent selection of good students; for attracting teachers of the highest calibre to the responsibilities of medical education, and for keeping alive their enthusiasm. It provides the best means for effecting essential contacts between teachers of medicine and persons working in other spheres of learning, particularly the natural and social sciences; for ensuring the provision of accommodation and equipment of a standard and on a scale that is required; and for diffusing beneficial educational influences throughout the health and hospital services." . . .

"The bringing of representatives of the university into the councils of the medical schools will not alone be enough. There is an urgent need for the development of the corporate life of the university. For their mutual advantage, the administrators and teachers of the medical schools need to be in closer touch with administrators and teachers of other colleges and schools, and to take a larger share in the general life of the university, and the conduct of its affairs. Likewise, medical students would benefit from better contacts with the rest of the student body of the university. A consistent effort to this end should be made. The kind of relationship that can and ought to exist between the university and schools will take time to mature; but when it is fully established not only the medical schools, but the whole university will be enriched. The need is realised, the time is ripe for action. We have no doubt that those charged with the direction of the affairs of the university and the medical schools will be equal to the opportunity. We do not disguise the fact that difficulties, and at times disheartening apathy, may be encountered, but we see no reason why the objective should not be attained." . . .

"We are of opinion that there is only one satisfactory way of ensuring that examinations are kept in the right relationship to the training and that is to make the examinations a medical student has to pass 'internal' examinations, reflecting in their requirements the aims and spirit of the training which the candidates have received. We use the term 'internal' in the usual academic sense, as an examination which is regulated by the university at which the student has been trained and which is conducted by the student's own teachers in collaboration with 'external' examiners, who are appointed by the university but have not been associated with the student's training. The presence of the external examiners and the supervision exercisable by the General Medical Council should safeguard fully the public interest." . . .

The committee conclude that "although the non-university medical schools did good work in time past, these three schools cannot meet the modern requirements of medical training efficiently. They are not able to provide a comprehensive course of training satisfying the conditions which we have set out in chapter 1 of our report. If they continue, they will inevitably do so as schools of a lower standard than the other medical schools of Great Britain. Although, undoubtedly, lack of financial resources has been a great handicap to them they could not be made the equals of university medical schools by being given increased financial aid. We cannot recommend that they should receive any grants from public funds." . . . "They therefore recommend that every medical school (1) should provide for a single organised course of training for undergraduate students, the planning and conduct of which and the admission to which would be based upon the requirements for the medical degree of the university of which the medical school is a part and (2) should make it compulsory for every medical student of the school to complete this course of training before presenting himself for examination in a clinical subject at any final qualifying examination for admission to the Medical Register," and imply that qualifications for registration other than university degrees should be discouraged. It would appear from a leading article in the *British Medical Journal** that the B.M.A. accepts the views expressed by the Goodenough Committee on this subject.

It will be seen that so far the Loveday and Goodenough Committees have reached very similar conclusions; it is when one comes to the teaching of pre-clinical subjects that they differ rather widely. The Goodenough Committee quote the opinion of the medical schools that these subjects should be taught in the medical schools of universities where they would have a definite medical trend. The Committee do not entirely accept this view; they emphasise the importance of a general grounding at school in the basic principles and methods of science, particularly in physics, chemistry and biology. They say, "We share the view, which is widely held, that a general education cannot nowadays be regarded as sufficiently liberal unless it includes an adequate training in the principles and methods of general science. In our opinion such a training in general science is the foundation which an intending medical student needs for his subsequent special study of the physical and biological sciences." They believe that a school leaving examination at 18 years of age planned and conducted so that it precludes excessive specialisation could reasonably be accepted in place of the First Medical Examination. They feel, however, that the special teaching of biology, that is the part with a medical bias, should be taught with anatomy and to a lesser extent in physiology and that chemistry and physics as related to medicine should be taught with physiology. They say there is much irrelevant detail in the pre-clinical subjects which should be drastically eliminated, but there is a growing recognition "that it is on the teachers of the pre-clinical subjects that the responsibility rests for laying the foundations of the student's realisation of the importance of health and the prevention of disease."

The importance of teachers in the clinical and pre-clinical subjects integrating their work and collaborating in research is emphasised; they state that the close proximity of clinical and pre-clinical departments is an overriding consideration and feel that the medical schools should provide both parts of the course, but to do this efficiently there should be 80 to 100 students a year.

"The view is fairly generally held that, for the better interpretation and application of anatomy, physiology and pharmacology to medicine as a whole, it is desirable that at least a good proportion of the teachers of these subjects should possess a medical qualification. Further, for the general advancement of the subjects and for an adequate and modern outlook in the teaching of them, it is essential that prospective recruits should be able and anxious to engage in research work and should have sufficient time to do so."

* July 29th, 1944, p. 150.

Speaking of the ideal teacher the Goodenough Committee say, "he has a wide and sound knowledge of his subject. If he is a clinical teacher his knowledge of medicine is allied to skill of a high order in medical practice. He has a keen interest in students, their development and their ideas, and an ability to inspire and guide them as well as to instil knowledge into them. The interest and initiative of students are best quickened and maintained in an atmosphere of original investigation and critical study, and the best teachers of medicine are those who are actively interested in the advancement of knowledge and its application to problems of health and disease. Failure to secure teachers of the right type will make it well-nigh impossible to obtain first-rate doctors and a first-class health service." They point out that the medical schools, particularly in the pre-clinical departments, are understaffed; the existing professional staff has insufficient secretarial or technical assistance, and this accentuates the difficulty of carrying out the research which is so essential to good teaching. They also emphasise that the right men will not be obtained unless the salaries are high enough to attract them. Junior posts should also carry good salaries, which will not force their holders to do outside work; junior teachers are of special value because they still have a vivid recollection of their own difficulties during the undergraduate period.

The salary scales proposed by the two committees are shown in Table 1. Both are stated to be pre-war figures which may require adjustment.

Table 1

	Goodenough	*Loveday*
Professor	£1,500—£2,500 ...	£1,000
Reader	£800—£1,500 ...	£500—£800
Lecturer	£700—£1,000 ...	£400—£600
Junior Lecturer ...	£500—£700 ...	£300—£400
Demonstrator ...	£350—£500 ...	£300—£400

Both reports emphasise that for at least a part of their career students should reside within universities in close association with students in other faculties; before this can be achieved much greater accommodation will be required. Excluding Oxford and Cambridge, only 8 per cent. of medical students are residential.

In Table II the main financial recommendations of the two Committees are shown; all estimates are based on pre-war values.

Table II

	Goodenough	*Loveday*
Capital expenditure ...	£10,000,000 ...	£1,038,000
Annual expenditure ...	£4,000,000 ...	£210,000

It will be seen that the ratio of capital expenditure is roughly proportional to the numerical strengths of the two professions, but the annual recurrent expenditure proposed by the Loveday Committee is only one-twentieth of that proposed by the Goodenough Committee. This is, of course, partly due to the much lower salary scales proposed, but it is probable that adequate provision for veterinary education is more expensive than for medical, and one can only conclude that the Loveday Committee have envisaged less generous facilities than the Goodenough Committee; in this connection it should be remembered that already the facilities for medical are much better than those for veterinary education.

J. F.

FOOT-AND-MOUTH DISEASE

At the beginning of last week an outbreak of foot-and-mouth disease was confirmed among pigs at Farnham Market, Surrey, the animals having come from premises in the parish of Ash and Normandy, Surrey. Further outbreaks have been confirmed among pigs at Eastbourne, Sussex; Farnham, Surrey, and Great Ayton, Yorks.

An additional outbreak has been confirmed among cattle at Lake, Sandown, Isle of Wight, and an area comprising the whole of the Isle of Wight has been declared to be an infected area.

* * * * *

Weekly Wisdom

". . . *If, as Bacon has observed, silence is the virtue of fools, talking is one of the follies of many virtuous people.*"—"The Times," leader, August 1st, 1944.

* * * * *

For a long time we have suggested that cattle-judging should take performance, as well as looks, into account. This is a different kind of performance—one which cannot be calculated or computed beforehand—but it can still make the innocent bystander shake his head in bewilderment over some of the decisions of the show ring. Once more beauty is, apparently, as beauty does.—*Farmers' Weekly.*

CLINICAL COMMUNICATION

Suspected Bracken Poisoning

L. N. GLEESON, M.R.C.V.S.
Waterford

Subject.—Eight three-year-old bullocks.

History.—At the middle of June I had occasion to visit a hill farm upon which about 30 bullocks had been grazed since the end of last March. At the time of my visit to the farm five of the cattle had died and three were ill. I suspected bracken poisoning from the symptoms, which were more or less typical of illness due to this plant. The cattle had no access to tillage fields in which one finds ploughed-up bracken roots, which are a common cause of poisoning. It was noted, however, that as a result of a few frosty nights which occurred about the end of May up to June 2nd, a large proportion of the tops of young growing ferns had withered, particularly in low lying parts of the farm, where large patches of ferns presented a blackish-green appearance. The frosted tops were friable and broke away from the remainder of the plant easily in the hand. In many places where the ferns were abundant it was noted that the cattle had eaten the frosted tops of the growing plant. They had not, however, specially selected the latter as many soft green tops also had been ingested. The conclusion reached by inspection of the lands was that the withered tops of the ferns had caused the poisoning.

Symptoms.—All the affected cattle exhibited a profuse haemorrhagic discharge from the nostrils. The temperature of one beast was 107·9°; anorexia was not complete but general depression was very marked. Haematuria was noted in one bullock, and a muco-catarrhal enteritis existed. The mode of death was quiet and was preceded by great weakness and collapse after a period of 24 to 48 hours from the onset of symptoms.

Post-mortem Examinations.—Petechial haemorrhages of the nasal and naso-pharyngeal mucous membranes. Swellings and redness of the mucous membranes of the small intestine together with scattered ecchymoses. The lungs exhibited blood splashes and, in the case of one bullock, marked oedema of these organs was a prominent feature. Petechiae were also noted on the meninges. Marked degenerative changes were found to exist in the liver and, to a somewhat lesser degree, in the kidneys.

Treatment.—It was realised from previous experience that treatment of this complaint would meet with little success. One bullock, however, the least seriously affected of the three, was given, intravenously, repeated large amounts of physiological saline solution with 6 per cent. gum acacia added. These injections were preceded by phlebotomy and the removal of a considerable quantity of blood from the animal. Calcium and magnesium were also given subcutaneously to this bullock the next day. The above animal survived although in a very weak state and was given a diet of new milk and eggs for a fortnight following cessation of symptoms. He is at present alive but very unthifty. The above treatment may have helped recovery but some cattle recover slowly without treatment, from this form of poisoning, recovery depending probably on the amount of bracken consumed.

Experimental

The following experiments were carried out on two cattle affected with tuberculosis and which eventually it was proposed to slaughter. The object of the experiments was to determine the length of time from ingestion of the withered tops to the onset of symptoms and the toxicity of the tops as compared with fern roots. Eight stone weight of withered fern tops, including half-withered tops, was collected and divided into lots of equal weight. The two tuberculous cows I have termed A and B respectively.

Cow A.—Three pounds of the bracken was fed twice daily mixed in with cut grass. This was continued for ten days without the appearance of symptoms. On the 11th and 12th days the cow was let out on a small paddock to graze. On the 13th and 14th days general malaise and depression were noted and on the 15th day symptoms similar to those described affecting the bullocks developed and the cow died on the 18th day. Intravenous therapy was tried without success.

Cow B.—This animal was not anxious to eat the bracken at first and refused to touch the fodder in which it was mixed. She was fed, however, with a quantity of growing oats for a couple of days, and when her appetite was sharpened for this food, in a single day she was given 9 lb. of the bracken. The following day she exhibited digestive disturbance and was somewhat constipated; food was refused. The third day, however, the bowels were a little loose and she took cut grass. For the succeeding few days the animal was normal. Nine days following the initial feed of bracken 15 lb. weight of the latter was given in three feeds within

(*Continued at foot of col.* 1, *page* 375.)

ABSTRACTS

[Cyanide Poisoning and its Treatment. Shearer, G. D., and Sellers, K. C. (1944.) *Vet. J.* **100**. 92-97.]

The most frequent cause of prussic acid poisoning in farm animals is by the consumption of foodstuffs containing cyanogenetic glucosides. Symptoms of fatal poisoning in cattle and sheep include increase in depth and rapidity of respiration, convulsions of various degrees and duration, opisthotonus, and jerky movements of the eyeballs. The blood is of a bright red colour and the most characteristic lesions found on *post-mortem* examination are darkened musculature, congestion and haemorrhages of the lungs, petechiae on the tracheal and bronchial mucosa, and a frothy bloody discharge from the mouth.

The most efficient antidote was a combination of the thiosulphate and nitrite of sodium, given intravenously or intraperitoneally. For sheep 1 g. $NaNO_2$ and 2 g. $Na_2S_2O_3$ in 15 ml. water and given intraperitoneally were found to be most effective, whilst Australian workers have recommended 3 g. $NaNo_2$ and 15 g. $Na_2S_2O_3$ in 20 ml. water subcutaneously for cattle.

The physiology of this method of treatment appears to be that the nitrite oxidises the haemoglobin inside the corpuscles to methaemoglobin and so facilitates the conversion of free cyanides in the blood stream to cyanomethaemoglobin. This complex is slowly decomposed liberating HCN which combines with the thiosulphate to form the innocuous thiocyanate.

Of a number of rabbits and sheep experimentally poisoned all given the above treatment recovered.

A. E.

* * * * *

[Some Clinical Experiences with Sulphapyridine in Small-animal Practice. Bryan, A. H. (1944.) *J. Amer. vet. med. Ass.* **104**. 806.]

Over a period of two years, sulphapyridine was used on a wide range of conditions encountered in small-animal practice, with good results in selected cases.

It was found to be useful in the early stages of canine and feline distemper and to have definite value in preventing the onset of many of the complications of those diseases. Suppurative conditions, such as conjunctivitis, otitis, rhinitis, abscesses and ulcers, puerperal sepsis, mastitis and infected war wounds responded well to sulphapyridine therapy. Wounds were treated with a preliminary cleansing, followed by a dusting with the drug in powder form, either alone or combined with boric acid powder to prevent caking.

The value of sulphapyridine was well established in abdominal operations carried out under field conditions, where asepsis was difficult to attain. In these cases, the drug was dusted directly into the abdominal cavity, both for the prevention and cure of peritonitis.

The results obtained in several cases of pneumonia were equivocal, while chronic distemper cases failed entirely to respond to treatment.

I. W. B.

* * * * *

[Psittacosis in a Budgerigar (*Melopsittacus undulatus*). Coles, J. D. W. A. (1944.) *J. S. Afr. vet. med. Ass.* **15**. 10-12.]

By intraperitoneal inoculation of material into white mice, the virus of psittacosis was isolated from a dead budgerigar; this is the first record of the occurrence of the virus in this species in South Africa, where the virus has previously been recorded only in pigeons. The aviary from which the budgerigar came was at a Transvaal mine, where budgerigars and canaries were kept for possible use as gas-detectors in underground workings. Only 27 of 40 budgerigars and six of ten canaries remained alive eight weeks after purchase, the rest having died off at more or less regular intervals. Owing to the danger to man, the survivors were disposed of by leading CO gas from a car exhaust pipe into the cages. The mine owners were advised to keep canaries only in the future, as, unlike budgerigars, canaries, although very susceptible to the virus, seldom carry it, and are also of proved value as gas-detectors.

E. C.

---

12 hours in a mixture of cut grass and growing oats. Digestive disturbance was exhibited the following day with constipation, depression and anorexia. On the 11th day (second day following second feed of bracken) the bowels became rather loose and the animal seemed anxious for water which was given freely. She also had slight dyspnoea. On the 13th day the cow was nearly herself again, having shown no symptoms of typical bracken poisoning. It was decided not to feed her the balance of the bracken as it seemed clearly established that a single feed of the withered plant did not tend to produce characteristic toxic symptoms.

REVIEW

[The Infectious Diseases of Domestic Animals. By W. A. Hagan. Comstock Publishing Company, Ithaca, New York. Price $6.00.]

Professor Hagan's book deals with the aetiology, nature, diagnosis and biological therapy of the diseases of domestic animals associated with bacteria, viruses, protozoa and fungi. It was written primarily in connection with the author's course in " Infectious Diseases of Animals " for veterinary students but will undoubtedly prove of value to practitioners and others who desire to have the more important facts regarding the infectious diseases of animals in most parts of the world in handy form for reference.

Part I (74 pages) consists of an eminently readable account of the mechanisms of infection and resistance and the blood groups. Parts II and III (274 pages) include systematic accounts of the various pathogenic bacteria and the diseases associated with them. Part IV (25 pages) deals with the pathogenic fungi. Part V (110 pages) contains a satisfying account of the pathogenic protozoa. Part VI (157 pages) is given to the viruses.

The whole work is well balanced and its scope can perhaps best be indicated by saying that it covers most of the ground included in the courses on infective diseases for students sitting pathology or medicine in this country but in less detail on the theoretical or laboratory aspects than would be required of pathology students and less on the applied side than would be expected in the final year. This probably reflects a different teaching set up in the author's own College.

Specialist workers will often find the descriptions and discussions of the diseases well known to them too brief to be satisfying but this is perhaps inevitable in a work which covers such a wide field in reasonable compass.

There are, however, important errors and omissions of which some examples may be given. It is, we believe, not true (pp. 87, 89 and 90) to say that Minett, Stableforth and Edwards used *Str. agalactiae* to include *Str. dysgalactiae* and *Str. uberis* respectively, and certainly incorrect to say that all three of these organisms belong to Lancefield's Group B. It seems a little optimistic to say (p. 88) that " Fortunately it happens that the disease (mastitis) can rather readily be brought under control in any herd by hygienic measures " with no reference to the many difficulties involved. No reference is made to the coagulase test in the chapter on staphylococci. There is an obvious printer's error in the transposition of lines 9 and 15 on page 125. The three lines given to the resistance of brucella (p. 132) seem inadequate, whilst no reference is made to its survival in milk products, or in fact any details of its excretion in the milk and consequent contamination of milk supplies. No reference is made to McEwen's 45/20 or living vaccines other than Strain 19 and none to the use of monospecific sera in distinguishing *Br. abortus* and *Br. melitensis*. The outlook here does not seem quite broad enough, as in various other parts of the book. The mere statement on page 240, " it is probable that such animals (cattle infected with avian tubercle bacilli) also occasionally react to mammalian tuberculin " seems hardly adequate as the only reference to the difficulties caused by avian infection in the tuberculin testing of cattle. Some details of the extent of the contamination of the milk supply by tubercle bacilli would be of value. The statement on page 267 that Vallée and Rinjard used the Johne bacillus as a vaccine subcutaneously might have stated that they injected it in an oily excipient since this was the main characteristic of their method. The statement on page 513 that the slaughter method has " frequently " been used in the British Isles for the control of foot-and-mouth disease is misleading since this has been the accepted and general policy for many years. Credit for the introduction of the goat virus for immunisation against rinderpest is given (p. 598) to Pfaff whereas we believed that this was worked out by Edwards many years earlier at Mukteswar. On page 627 no attention is paid to Daubney and Hudson's important work on the transmission of malignant catarrhal fever, although the journal reference is given.

Errors or omissions of this kind detract from the value of the book and will, it is hoped, be amended in a future edition which seems certain to be called for. It remains, nevertheless, a well conceived and valuable work because it brings together concisely a mass of information necessary to every veterinary surgeon. It will amply repay purchase.

The printing, illustrations and general make-up are superlative and reflect great credit on the publishers.

The need for a Government declaration on war damage policy is emphasised in a memorandum by the War Damage Committee of the Association of British Chambers of Commerce.

Questions and Answers

"Questions and Answers" will be published on alternate weeks.
The submission of questions for inclusion in this column will be welcomed. They can relate to any aspect of veterinary work and where publication of the name of the enquirer is not desired, a pseudonym should be supplied, the name and address also being given.
Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.
All communications should be addressed to the Editor.

Cystic Ovaries in the Mare

Q.—*Is there any treatment for cystic ovaries in the mare other than radical operation, which is worth trying in general practice?*—"*Surrey.*"

A.—The term cystic ovaries in the mare is applied so loosely that it may refer to several conditions :—

(1) Mares showing spiteful behaviour both to man and other horses. (This is usually more male than female type of behaviour.)

(2) Mares having very long heat periods which are in oestrus for weeks on end.

(3) On clinical examination where large follicles are found in the ovaries, the vagina shows anoestrus type of secretion and the mare does not come in oestrus.

In No. 2 barren and maiden mares frequently behave like this in the early spring, but by the month of May most of them return to a normal oestrus cycle with the more normal five to eight day oestrus period. If treatment is needed a 1,000 I.U. of pregnancy urine extract given intravenously will cause ovulation in about 30 hours in these long heats, and oestrus will end two to three days after injection.

In (3) although the large follicles in ovaries are referred to as "cysts" it is only a clinical term; they are merely large follicles. Puncture of these follicles with a trocar through the vagina usually results in a corpus luteum being formed and the mare comes in oestrus in about 16 days after puncture.

On *post-mortem* examination of mares showing normal sexual behaviour in groups 1, 2 and 3, both macroscopically and microscopically, the ovaries appear to be quite normal, only showing follicles at different stages of development and regression, with or without a corpus luteum according to the stage of the cycle.

From this it is reasonable to assume that abnormalities and variations in the sexual behaviour are merely due to abnormal variations in pituitary secretion, and the condition of the ovary we examine at any time is only an expression of pituitary stimulation.

In Group (1), removal of ovaries may or may not result in a more placid temperament, and, as mentioned, ovaries from these mares appear to be normal.

If stilboestrol is implanted into mares it results in typical male behaviour towards other mares and in some cases the mares are more fractious to handle.

This might indicate that an abnormally high level of oestrogen is responsible for this behaviour, but it is not known whether the oestrogen itself is the cause, or whether a high level may have some remote effects on other hormone levels which may be the primary cause of it.

As testosterone is antagonistic to oestrogens it may be worth while giving it either by injection or implantation in the treatment of group (1), but expense at the moment is rather prohibitive.

The "Inconclusive" Tuberculin Test Reaction

Q.—*Could this reaction to the tuberculin test be termed "inconclusive"?*—*P. C. Creagh.*

	Initial	*48th hr.*	*72nd hr.*
Avian ...	12 *mm.*	14 *mm.*	14 *mm.*
Bovine ...	12 *mm.*	16 *mm.*	16 *mm.*

A.—The interpretation of tests does not depend on the reactions shown by a single animal but by those of the herd as a whole. In this single case the interpretation would be "inconclusive—re-test in one month by single comparative test."

Arrest of Haemorrhage from the Nasal Septum

Q.—*How can one arrest haemorrhage from the nasal septum of a dog? Most of the orthodox methods seem quite useless except for very temporary effect.*—*J. D. Haywood.*

A.—Haemorrhage from the nasal septum of the dog can be a most difficult condition to treat, and as you suggest, the orthodox methods of local application of styptics frequently have only very temporary effects. The difficulty is due to the fact that the open end of a blood vessel in the nasal septum has only a very thin layer of tissue above it and consequently is not easily or rapidly sealed off. Good results may be obtained by the injection of a biological haemostatic, one such being "Manetil" (Bayer Products, Ltd.); this preparation influences the bleeding time and so provides better conditions for the permanent sealing of the vessel. Dosage is the contents of one to three ampoules (each of ten biological units) given at intervals during 24 hours, but up to five ampoules may safely be given in that time if necessary. Local measures should, of course, be adopted at the same time.

Careful differential diagnosis should always be made in cases of nasal haemorrhage in dogs since a case which may be apparently bleeding from the septum, may, on close examination, prove to have a severed vessel at the skin surface of the nose or skin immediately below the nostrils, when it is obvious that a deep ligature will be the treatment to be adopted.

Salvage for Dogs' Meat

Q.—*Can any salvage be made for dogs' meat from animals which have died of, or been slaughtered when suffering from :—*

(1) *Tetanus,*
(2) *Yew poisoning,*
(3) *Strychnine,*

provided that the carcase be dressed within half an hour of death?—"*Safety.*"

A.—Knackermen sell for dogs' and cats' meat the carcases of horses and cattle which have died from almost any cause and provided the meat is not putrid it is considered suitable for this purpose.

Prior to the war it was the practice to boil such meat before sale but since the war it has become more common to sell this in the raw state. There is no doubt that the flesh of animals dead from poisoning of various kinds and from tetanus, blackquarter, tuberculosis and similar diseases is very commonly used for this purpose. There is no law which prevents the sale of such flesh for animal feeding apart from the Diseases of Animals Acts and Orders which exercise some control over anthrax and other scheduled diseases. There is therefore no legal restriction on the sale of flesh as mentioned for animal feeding whether the carcase be dressed within a specific time or not after death. The carcases which are dressed for animal feeding are not normally bled as in the case of flesh intended for human consumption.

(1) Memorandum 62 Foods recommends that the flesh of animals affected with tetanus should not be used for human consumption, but, according to Ostertag, "The flesh of animals affected with tetanus is not injurious to health. According to Fermi and Celli, the tetanus toxins are rendered inactive by the hydrochloric acid of the gastric juice. This explains why pure cultures of tetanus bacilli can be administered to animals *per os* without any harmful effect. Swine have also been fed with the flesh of horses infected with tetanus without any result. This is also in accord with Messner's demonstration that the flesh of a cow affected with tetanus contained tetanotoxin, as proved by inoculation of the muscle-juice in a mouse, but caused no symptoms when given by the mouth. It has also been shown to be harmless in man."

(2) The amount of yew leaves necessary to kill a horse of 1,000 lb. body weight is in the region of 2 lb. About five times this amount is necessary to cause death in the case of cattle, according to Cornevin. The concentration of taxine present in the muscle of an animal dead from yew poisoning is so small that it is highly improbable that any ill effects would result from quantities of meat normally eaten by a dog.

(3) According to Ostertag the flesh of animals poisoned with strychnine is non-injurious to man. "This immunity is explained by the distribution of the poison over the whole body. In 1 kg. of flesh from an ox poisoned with 0·5 g. of strychnine, a man can at the most ingest 1 mg., which is a harmless dose. Another factor is the reducing power of the living and surviving tissues, by which the poisons are so destroyed that the flesh on chemical analysis shows hardly any, or no trace of the poison."

Having regard to the well-known susceptibility of dogs to strychnine poisoning, it would probably be prudent to exclude the flesh of animals dead from strychnine poisoning. It should be noted that birds are exceedingly resistant to strychnine poisoning and death in the human has been recorded following the ingestion of partridges poisoned with strychnine.

It is unwise to feed to dogs and cats the stomach and intestines of animals poisoned from whatever cause on account of the high concentration of poison which is likely to be present in these organs.

Correspondence

Removal of the Placenta in the Cow

Sir,—This has been a subject of great controversy for years and even now opinions differ considerably as to what is the best time and the procedure to adopt. May I be allowed to give you my ideas on the subject?

The straightforward cases, in which the placenta comes away without much trouble (usually about the third day in normal

calving cases but the fourth day in abortion cases) do not require any comment; but the cases which cause the trouble are those which are not ready, where the placenta is too firmly attached and those where the *os uteri* is closed.

If you are called in to a case and find that the placenta is firmly attached and that if you cleansed the cow you would cause damage and suffering and perhaps sterility and leucorrhoea, remove only the portion which is showing but give the cow a good uterine irrigation, using a least a bucket of warm water to which has been added 2 or 3 oz. of some good disinfectant—but not any of the coal tar products—and a dose of metritis vaccine. Leave the cow alone and visit her in a couple of days, when you will find that she has cleansed on her own account and now only requires another douche out.

What should you do when you find that the *os uteri* is closed? Do not force it, because by so doing you will cause damage and perhaps sterility, but take out what you can by using a couple of fingers in the os; then give her an irrigation as mentioned above and a dose of a good metritis vaccine.

For uterine irrigation do not use a pump but a douche can to which is attached about one yard of tubing. Place the can on the cow's back and ask the person who is assisting you to keep it full.

You will get better results from irrigation and vaccines than by forcing any afterbirth which is not ready for removal; the same remarks apply to those cases where the *os uteri* is closed.

The only objection I have to the above method is that it involves a second visit to those cases which are not ready for removal, but it saves many visits afterwards in that you do not get those straining cases which were once very common and where the milk supply dropped considerably; nor do you get leucorrhoea.

I have tried many methods but the above I have found to be most satisfactory.

Yours faithfully,

Eastwick House, Evesham, Worcs. G. C. Lancaster.

September 17th, 1944.

. . . . .

Sir,—I have probably removed as many bovine placentae as most practitioners at all periods after calving and abortion, and in all stages of decomposition. For a long time I have had grave reason to doubt the wisdom of Folmer Nielsen's advice to "remove as much of the after-birth as possible in 24 hours." I believe it is impossible to state any 'right time' for the removal; in one case it may be too early at four days and in another too late at 48 hours. For several years now, we have used approximately 25 mg. stilboestrol which we have repeated if necessary. We find that even if this does not have the desired effect of causing more prompt expulsion of the placenta, when it is eventually removed or comes away naturally the uterus is left in a much healthier condition. Perhaps in time it will be agreed that unless the animal is ill, it is inadvisable to attempt to remove the placenta by hand.

Treatment of Husk in Cattle

Whilst the answer published is probably the scientifically correct one, very many practitioners who, following advice from laboratory workers, had stopped giving intratracheal injections for husk, have reverted to the practice and claim marked benefit. Be that as it may, there can be little doubt that losses in young cattle seldom occur from husk infection alone, the animal which succumbs usually being found heavily infested with stomach worms producing a gastro-enteritis. Rational treatment for husk, therefore, would appear to be to treat for parasitic gastro-enteritis and then to carry out the other advice suggested.

Yours faithfully,

Tamworth, Staffs. H. W. Steele-Bodger.

September 21st, 1944.

. . . . .

(1) *Foal Docking*; (2) *The Stuck Metal Plunger*

Sir,—With reference to the correspondence "Questions and Answers" in *The Veterinary Record* of the 9th inst., I will relate my experience of inserting a local anaesthetic before docking a foal. During 1921 in a Midland county I had to dock a number of shire foals and, believe it or not, in this particular area a local anaesthetic had never been used and the farmers at first strongly objected to the use of an anaesthetic and ridiculed the idea; however, they gradually admitted it was an advantage. Personally I had never used or seen the method adopted for local anaesthesia in docking, and I wrote to a well-known West of Scotland practitioner and he described the method and advised the use of a record syringe. I found a record syringe was not very successful in my hands as you had to use a needle with rather a large bore and you could not exert very much pressure.

I was docking two foals for a dentist who had a farm. The owner was present and when I had finished he made the remark that I should get one of Parke Davis' dental syringes and inject the anaesthetic under pressure; I would then get better results and use less of the anaesthetic. He stated that pressure had a great effect in producing local anaesthesia in dental work and that even with distilled water and using a dental syringe one could extract a tooth without the patient feeling pain, but he had never tried this method. I purchased a dental syringe at the time and found it a great advantage. Since then I have always used a dental syringe for local anaesthesia and for the subcutaneous injection in dogs of such agents as morphia.

As regards "The Stuck Metal Plunger," over 20 years ago I designed a spirit proof case for syringe and four needles. By this method you have no stuck pistons and the syringe is always assembled ready for use and needles in the case to be fitted to the syringe.

When using anti-abortion vaccine I sterilise case, syringe and needles and put some industrial spirit in the case prior to proceeding to the farm: so far I have had no untoward results. I asked Professor Dalling's opinion on the point: there was no objection to the procedure but I was to be sure no spirit was left in the syringe.

Yours faithfully,

The Anchorage, Ardnadum, Argyll. A. Hart.

September 18th, 1944.

. . . . .

Grit for Poultry

Sir,—I think the writer of the answer to this question does not stick very closely to the text and rather evades the chief point at issue. Even a novice at poultry keeping knows the effect of flint grit in the gizzard and in the days when corn was largely used it was well taken and nutritive. Nowadays much balancer meal is too fibrous, has no proper nourishment in it, and an insufficiency of vitamins. Therefore when heterogeneous house-scraps, often too bulky and insufficiently minced and simmered, are mixed with the meal, no wonder the poor fowls die.

I am of the opinion that limestone grit, cockle shell and oyster shell do more harm than good to fowls, that they do not do what some people and several poultry books claim for them and that they ought not to be given.

I agree heartily with W. P. Blount when he writes in what I deem to be the best poultry book yet written: "Finally, when lime is required for shell-forming purposes why not give it as meal or flour. It would be far more rational to supply flint-like grit and to feed limestone flour or sterilised bone meal separately in a mash than to give oyster shell or cockle shell *in the belief* that it will grind effectively and also supply the animal with lime for food purposes."

I do not agree with the statement that insoluble silicious grits aid the triturating action of the gizzard, because they are irregular, pointed, angular and dangerous and often injure the proventriculus in their passage.

Yours faithfully,

Bolton. G. Mayall.

. . . . .

Supply of Protective Clothing

With reference to the "Questions and Answers" feature which appeared in the September 9th issue of *The Veterinary Record* relating to the supply of protective clothing to veterinary surgeons, a letter has been received from the Ministry of Agriculture pointing out that the Ministry is not now authorised to issue certificates for the coupon-free purchase of working boots and leggings. A copy of the latest memorandum relative to the issue of certificates for protective clothing and of buying permits to enable the purchase of rubber boots is reproduced below.*

Since the receipt from the Ministry on December 18th last of a copy of the Board of Trade Pamphlet R.R.B./1 in connection with the repair and reconditioning of rubber boots, the Board of Trade have introduced another scheme whereby veterinary surgeons may obtain reconditioned rubber boots without permits at the price of 24s. per pair, on surrender of three clothing coupons from their personal clothing ration. A more recent concession permits rubber boots with waterproof canvas uppers (legs) to be bought without any restriction beyond the surrender of three coupons.

T.A.Y.4617

* Ministry of Agriculture and Fisheries: *Protective Clothing for Veterinary Surgeons—issue of certificates for coupon-free purchase and of buying permits.*

1. The Ministry is authorised to issue certificates to enable veterinary surgeons to purchase, without having to surrender clothing ration coupons, garments, etc., of the kind mentioned in paragraph 2. In addition arrangements have been made for the Ministry to issue buying permits enabling the holders to purchase rubber boots. It is, however, a condition of the issue of such certificates and permits that they shall be limited to articles which are required for the personal use of the veterinary surgeon concerned in pursuit of his agricultural practice. In the national interest, veterinary surgeons are urged not to apply for certificates or permits unless it is absolutely essential for them to have new garments or rubber boots.

2. Certificates can be issued only in respect of articles which are named below and which are of the coupon values indicated.

Long coat, unlined, rubber or oilskin	9 coupons.
Parturition overall, rubber or oilskin	7 coupons.
Overall coat	3 coupons.

3. Every application for a certificate or buying permit should be made, on the veterinary surgeon's headed paper, to the Ministry at the address given overleaf (see below) and should incorporate a declaration in the following terms over the veterinary surgeon's usual signature:—

"I, ..., a veterinary surgeon engaged in agricultural practice at....., hereby declare that I require for my own use in my agricultural practice the following articles of clothing, namely:

.....

Signed....."

(This memorandum should not be used as a form for making the required declaration, but should be retained for future guidance.)

4. Every application for a certificate or a buying permit must be made by the veterinary surgeon who requires the article(s). Neither a certificate nor a buying permit will be issued to any employer for clothing for the use of his assistants or to a firm for articles required for the use of the partners of that firm.

5. If the articles specified in the veterinary surgeon's declaration are to be purchased from more than one trader, notification to that effect should be given so that as many certificates may be issued as there are traders concerned. A certificate should not be surrendered to the trader if he is unable to supply all the articles in respect of which it is valid, but should be returned to the Ministry for amendment and, if necessary, for the issue of new certificates. The Ministry will not be willing to issue a new certificate for an article which a trader is unable to supply unless the certificate previously issued in connection with such article is returned to this Department.

6. The certificate, which is valid for the coupon value stated therein, must be surrendered to the trader who supplies the article(s) specified.

7. In the case of rubber boots, the order to the retailer must be accompanied by the buying permit and in addition for rubber boots other than those which have been reconditioned, the proper number of clothing ration coupons. The conditions under which reconditioned rubber boots may be purchased coupon-free are explained in the Board of Trade leaflet No. R.R.B/1.

Ministry of Agriculture and Fisheries
(First Floor), 99, Gresham Street, London, E.C.2.
January, 1944.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

Oct. 11th.—Meeting of the Editorial Committee, N.V.M.A., at 36, Gordon Square, W.C.1, 2.30 p.m.

Oct. 12th.—Annual General Meeting of the Central Veterinary Society, Conway Hall, Red Lion Square, W.C.1, 2 p.m.

Oct. 13th.—Meeting of the Dumfries and Galloway Division, N.V.M.A., at Dumfries (Station Hotel), 2 p.m.

Oct. 13th.—Meeting of the Mid-West Division, N.V.M.A., at Bristol (Royal Hotel), 2.30 p.m.

Oct. 16th.—R.C.V.S. Committee Meetings, 10, Red Lion Square, W.C.1.

Oct. 17th.—R.V.C.S. Committee and Council Meetings, 10, Red Lion Square, W.C.1.

Oct. 18th.—R.C.V.S. Quarterly Council Meeting, 10, Red Lion Square, W.C.1.

Oct. 18th.—Meeting of the Section of Comparative Medicine, Royal Society of Medicine, at the Society's House, 1, Wimpole Street, W.1, 2.0 for 2.15 p.m.

Oct. 19th and 20th.—N.V.M.A. Annual Meeting, Council Meetings and Demonstrations, in London.

Oct. 19th.—Annual General Meeting of the V.V.B.F. Ladies' Guild, 10, Red Lion Square, London, W.C.1, 11 a.m.

Oct. 24th and 25th.—Meetings of the British Society of Animal Production and the Institute for the Study of Animal Behaviour, London School of Hygiene and Tropical Medicine, Gower Street, W.C.1, 10.30 a.m.

Nov. 3rd.—Meeting of the Sussex Division, N.V.M.A., at the Old Ship Hotel, Brighton, 2.15 p.m.

Nov. 16th.—Meeting of the South-Eastern Division, N.V.M.A., at Tonbridge (Rugby Football Club), 2.30 p.m.

* * * * *

Future Meetings

Meetings of the British Society of Animal Production and the Institute for the Study of Animal Behaviour.

Meetings of the above societies will be held on Tuesday and Wednesday, October 24th and 25th, 1944, in the Lecture Theatre of the London School of Hygiene and Tropical Medicine, Gower Street, W.C.1.

On the 24th the B.S.A.P. will hold an all-day meeting (commencing at 10.30 a.m.) on "The British Sheep Industry." The programme will be that which should have been given at the cancelled July meeting, details of which were given at the time in our columns. After a general survey by Professor R. G. White, of Bangor, papers will be read on "Hill Sheep" (D. H. Dinsdale), "Sheep for Long Leys" (T. L. Bywater), and "Arable Sheep" (J. F. H. Thomas).

On the morning of the 25th there will be a joint session of the two societies, commencing at 10.30 a.m. Papers will be read on "The Behaviour of Sheep Browsing during Drought in W. Australia" (J. E. Nichols) and "The Grazing Habits of Beef Cattle and their Relation to Pasture Management" (D. B. Johnstone-Wallace). As Sir George Stapledon will unfortunately not be able to read an account of the behaviour of sheep grazing on hill pastures in Wales, the remainder of the session will be taken up by ten-minute communications on current scientific investigations concerning sheep. (Time will, of course, be given for a general discussion on the main papers.)

In the afternoon of the 25th, commencing at 2.30 p.m., there will be a meeting of the I.S.A.B., at which all members of the B.S.A.P. and of the veterinary profession will be welcome. The opening paper will be by Dr. K. L. Blaxter (N.I.R.D., Shinfield) on "Food Preference and Food Habits in Dairy Cows." After this has been discussed, it is hoped that Professor Samson Wright will be able to contribute his paper on "The Contribution of Animal Experiment to our advances in knowledge upon Human Psychiatry," which was to have been read before the cancelled joint I.S.A.B.—Royal Society of Medicine (Section of Comparative Medicine) meeting last July. Dr. J. T. Edwards will then read a paper on the veterinary implications of the study of animal behaviour.

* * * * *

Annual General Meeting, N.V.M.A.

With this issue we publish the notice and agenda of the Annual General Meeting of the Association to be held at the Connaught Rooms, Great Queen Street (Kingsway), London, W.C.2, on October 19th, *at 12 noon* (not at 11.30 a.m. as previously announced). This publication also contains the Annual Report and Balance Sheet as well as other information.

The Annual General Meeting will be preceded at 10 a.m. by an Ordinary Meeting of Council.

Special Meeting of Council

There will be a special meeting of the Council to discuss the Second Loveday Report in the light of the views of Divisions thereon on Friday, October 20th. This special Council meeting will be held at the London School of Hygiene and Tropical Medicine, Keppel Street (Gower Street), W.C.1, and will begin at 10 a.m.

After the adjournment for lunch and the demonstration referred to below and at the conclusion of this special meeting, a short Ordinary Meeting of Council will be held.

Talk and Demonstration

After lunch—and before this special meeting of Council is resumed—there will be a talk and demonstration by Mr. J. O. Powley, M.R.C.V.S., on Contagious Diseases: control by personal disinfection, etc.

This talk will begin at 2 p.m. and all members of the profession are cordially invited to be present.

It had been hoped to stage other demonstrations but suitable arrangements could not be made without trespassing on the time which it is felt should be devoted to the above-mentioned important meetings.

* * * * *

PERSONAL

Members of the profession will be interested to learn of the award of the Distinguished Service Cross to Lieut. A. F. A. Abbott, R.N., of H.M.S. "Torbay," only son of Captain A. A. Abbott, M.R.C.V.S., of Charmouth, Dorset. The exploits of the submarine in which Lieut. Abbott was serving were fully reported in the Press at the time and were the subject of a special broadcast by the B.B.C. Lieut. Abbott entered the Royal Navy from Dartmouth in 1935.

* * * * *

Births.—Harris.—On September 16th, to Mary Leslie (*née* Somervail), M.R.C.V.S., Worthing, wife of Captain Stewart Harris, R.A.P.C.—a son.

Lockhart.—On September 9th, at the Nursing Home, Thoralby, Yorks, N.R., to Ursula, wife of D. M. Lockhart, M.R.C.V.S.—a son.

* * * * *

Marriages.—Bishop—Evans.—The marriage took place on September 7th, 1944, at Derby Presbyterian Church, between Wilfred Henry Bishop, M.R.C.V.S., and Enid Millicent Evans, S.R.N.

Cogle—Hutchinson.—The marriage took place on Saturday, September 30th, 1944, at the Congregational Church, Uttoxeter, Staffordshire, between Verona Cogle and Jack Hutchinson, M.R.C.V.S.

Hodgins—Craig.—On August 8th, 1944, at Kilkeedy Church, Clarina, Limerick, by Rev. J. R. H. Craig, M.A. (father of the bride), assisted by Rev. T. J. P. Westropp, M.A., and Rev. W. R. F. Manning, M.A.: Richard Desmond Hodgins, M.R.C.V.S., elder son of Mr. and Mrs. John Hodgins, Annegrove House, Parteen, Limerick, to Margaret Hazel Annette Craig, C.S.P., elder daughter of Rev. R. H. Craig and Mrs. Craig, The Rectory, Clarina, Limerick.

* * * * *

CENTRAL ADVISORY COMMITTEE ON ARTIFICIAL INSEMINATION

The Minister of Agriculture and Fisheries, after consulting the Royal Agricultural Society of England, has appointed the Duke of Norfolk, Joint Parliamentary Secretary to the Ministry of Agriculture, to be Chairman of the Central Advisory Committee on Artificial Insemination. As announced during June, this body will advise the Minister upon the control, including the economic aspects, of artificial insemination centres and will consider applications for licences to set up such centres.

Other members of the Committee are: Appointed by the Minister (8).—Sir John Barlow, livestock breeder; Mr. R. H. Franklin, a Principal Assistant Secretary of the Ministry; Mr. A. Hurd, Assistant Agricultural Adviser to the Ministry; Professor A. Scott Watson, Chief Education and Advisory Officer to the Ministry; Mr. T. Dalling, Director of the Ministry's Veterinary Laboratory, Weybridge; Dr. J. Hammond, Director, Animal Nutrition Institute, Cambridge University; Professor W. C. Miller, Professor of Animal Husbandry, Royal Veterinary College, Sonning, Berks.; and Sir Alfred Wood, chartered accountant and Director of the British Sugar Corporation.

Four members are nominated by the Milk Marketing Board.—Sir Thomas Baxter (its Chairman), Mr. S. Foster (General Manager), Mr. Ben Hinds (Vice-Chairman), and Mr. R. W. Horton (Wiltshire dairy farmer).

The National Farmers' Union will be represented by four of its committee chairmen: Mr. J. W. Salter Chalker (animals), Mr. G. Gibbard (livestock), Mr. T. Peacock (milk), and Mr. R. A. Ward (development and education).

Nominated by the cattle breed societies (4) are Mr. J. L. Cridlan (breeder and judge of Aberdeen-Angus cattle), Mr. W. J. Cumber (breeder of Shorthorn cattle and of horses), Mrs. G. M. Strutt (breeder of British Friesian cattle), and Mr. Hugh Wyllie (breeder and judge of Ayrshire cattle).

Mr. H. Twinch, the Ministry's chief livestock officer, is the technical assessor.

The Secretary to the Committee is Mr. C. H. Wake, Ministry of Agriculture and Fisheries, Block 4, Bickenhall Mansions, London, W.1.

* * * * *

GUY SUTTON MEMORIAL FUND

(9, Red Lion Square, London, W.C.1)

Further donations:

	£	s.	d.
Staff of Thomas Wolfe & Son	2	2	0
Col. T. S. Green	1	1	0
Previously acknowledged	1,234	4	6
	£1,237	7	6

N.B.—This Fund will be closed at the end of October.

* * * * *

REGISTRY OF VETERINARY PATHOLOGY AT WASHINGTON, D.C.

Recently an arrangement was approved by the Surgeon General of the U.S. Army and the Board of Governors of the American Veterinary Medical Association for the establishment and maintenance at the Army Institute of Pathology, Army Medical Museum, Washington, D.C., of a Registry of Veterinary Pathology. This registry will become a unit of the American Registry of Pathology, an organisation operating by the authority of the Surgeon General under the sponsorship of the National Research Council.

The purpose of the American Registry of Pathology is comprehensive investigation in certain special fields, which at present comprise: ophthalmic pathology, otolaryngitic pathology, orthopedic pathology, dental and oral pathology, neuropathology, dermatologic pathology, pathology of neoplasms, with special consideration to those of the endocrine glands, the kidney, the urinary bladder, and the lungs. Through close co-operation with various national societies, records and material in these several specialities are brought together at the Army Institute of Pathology for systematic study. The number of specimens received is considerable; for example, there are now available for investigation 4,747 tumours of the urinary bladder and nearly 2,000 malignant melanomas of human eyes. There are also on hand prepared sections of eyes from many different species of animals. All the material and the records of the Registry are available for study to graduate students, specialists, as well as other authorised persons.

For the Registry of Veterinary Pathology it is desired to assemble (*a*) material representing general pathologic anatomy, including vitamin deficiencies, specific diseases of different tissues and organs, and examples of natural and experimentally induced neoplasia; (*b*) a complete collection of prepared slides representing the normal histology of the different species of animals, including domesticated and wild mammals, birds and cold-blooded vertebrates, and (*c*) material illustrating experimentally induced lesions of infectious diseases.

As material accumulates, loan sets of slides will be made available for study. Similarly, sets of lantern slides will be prepared which pertain to topics of special importance; these also will be available for loan to contributors.

This announcement is for the information of veterinarians and others interested in comparative pathology; it is hoped that they will make full use of the Registry and send to it material deemed of interest for teaching and for the investigation of animal and human diseases. Material submitted should be addressed to: The Director, Army Institute of Pathology, Army Medical Museum (attention: Registry of Veterinary Pathology). 7th and Independence Avenue, S.W., Washington 25, D.C. The director will be glad to furnish further instructions to contributors for submission of material to the Registry of Veterinary Pathology.

Special Committee on Registry of Veterinary Pathology.—W. H. Feldman, Mayo Foundation, Chairman; Captain Charles L. Davis, V.C., Army Institute of Pathology; Harry W. Schoening, Chief Pathological Division, U.S. Bureau of Animal Industry. Member *ex officio*: Lt.-Col. Balduin Lucké, M.C., Deputy Director, Army Institute of Pathology.

* * * * *

LEGAL NOTES

Danger of Feeding Unboiled Swill.—Giving evidence in a case at Carlisle in which a man was charged with having in his possession swill which had not been boiled before it was fed to pigs, Mr. J. K. S. Elmslie, a veterinary inspector, stated that Ministry of Agriculture officials had found that the bones of imported meat, especially from the Argentine, were frequently contaminated by the virus of foot-and-mouth disease. The swill, it was stated, came from military establishments. It consisted of bones, potato peelings, bread, cabbage leaves and tea leaves.

The defendant, Joseph Earl, of Kingsmoor Farm, Moorville, near Carlisle, was fined 10s. and ordered to pay 25s. costs. He stated in evidence that he always boiled the swill in the proper manner except at odd times when he was short of coal or the boiler was not in order. This offence had occurred while he was waiting for a new boiler. He pleaded guilty to a technical offence.

* * * * *

LIVESTOCK IN TANGANYIKA

Improvement in Rinderpest Situation

The rapid development, since the start of the war, of Tanganyika's livestock industry is described in an account from the Territory's Department of Veterinary Science and Animal Husbandry. In the first four war years, the number of cattle marketed rose from 99,612 to 238,683 and the value from £124,590 to £404,191. For security reasons, it is not possible to quote the figures for 1943, but it can be said that Messrs. Liebigs, Kenya, alone purchased 100,000 head of cattle in the Territory. Incidentally, the export of cattle to neighbouring territories is almost entirely a war-time development. In 1939, the number of cattle bought by Liebig's Factory was 8,258, which means that last year's figure represents a twelve-fold increase. This development of an industry which has played a considerable part in the Empire war effort, reflects great credit on the department. The hard work that has brought success can be judged by just one task undertaken—the anti-rinderpest campaign of 1940-1942, when 4,586,780 head of cattle were inoculated.

The first important step taken towards a more direct contribution of the livestock industry to the war effort was made in October, 1940, when Mr. H. E. Hornby, a former director of the Department, was made Food (Animal Products) Controller. This appointment was made owing chiefly to the increasing demand for slaughter stock for Liebig's Meat Factory in Kenya, which is producing tinned meats for the Forces. At the same time, the demand was increasing daily for fresh meat, bacon and dairy produce to meet the requirements of the numerous military, refugee and internment camps in East Africa as well as for ships calling at East African ports.

Meanwhile, considerable additional staff and financial assistance provided largely by votes from the Colonial Development and Welfare Act, 1940, resulted in a great improvement in the rinderpest situation and in various aspects of the expansion of the industry—notably in the numbers of slaughter stock and quantities of ghee (butter fat) and leather produced for military purposes. Another important task being carried out is the handling of propaganda which is successfully persuading many African farmers to sell their surplus cattle in overstocked dry areas.

A recent census of livestock has shown that there are about six million cattle and almost the same number of sheep and goats in the Territory. These totals are greater than those given for any other part of the British Colonial Empire and about 97 per cent. of the animals are owned by Africans. The report points out, however, that although these census figures may appear impressive, it is estimated that about double this number would be necessary satisfactorily to improve the diet of all the African people of the Territory by the addition of adequate supplies of meat and milk. It admits that there is a great deal of work still to be done to raise the standard of production. Already, however, the supply of more meat to certain areas has greatly improved the health of the African. In the sisal plantations, for instance, over 20,000 head of cattle are consumed each year. Sisal production is on the priority list in Tanganyika's war effort and the addition of meat to the diet of the workers has undoubtedly increased their efficiency.

The proportion of hides and skins forms an important part of the Territory's livestock industry and the export of tanned leather is now some 14 times greater than at the beginning of the war. The report admits, however, that the preparation of hides and skins (*i.e.*, flaying and drying) leaves much to be desired and a good deal of attention is now being given to the encouragement of shade-drying in properly constructed Government and Native Authority drying sheds in the more remote areas. Further legislation is also under consideration for the provision of grading to ensure adequate control over this industry. It is estimated that up to a million hides and more than this number of skins should be available for export (or local tanning) each year.

The preparation of clarified butter and ghee has also expanded considerably since the start of the war. The figures for 1939 are clarified butter 1,639 cwts. and ghee exported 17,926 cwts. The figures for 1942 are 6,237 cwts, and 27,699 cwts.; the figures for total production of ghee in the Territory are not available. Clarified butter fat is the territorial trade name for pure butter fat obtained by boiling the cream from milk. This product has a high standard of purity and is much in demand by the European housewife in East Africa. African-made ghee is a similar product of lower purity and to raise the standard of the product a number of African producers in each area are being encouraged to purchase and operate their own separators and are given courses of instruction in ghee schools.

The report, in conclusion, says that the importation of all animal products has decreased steadily during war-time, in spite of an increased demand owing to the requirements of the military and a large refugee population. The fact that the Territory is now just about self-supporting in pig and dairy produce represents no mean achievement.

* * * * *

MINISTRY OF AGRICULTURE NEWS SERVICE

Are Your Cows Paying Enough Rent?—Farmers who for years have prided themselves on knowing the individualities, likes and dislikes of their cows, are often surprised after a short period of proper milk recording, to find how little they previously knew about the actual yields of individual cows. The owner will soon discover that there is a correlation between the amount of food she eats and the milk she gives. For the first time he will know whether the "milk rent" she pays is sufficient. Daily recording not only enables more efficient management of the cow, but helps in detecting the faults of milking machine or the milker.

To obtain the full benefit from milk recording entails more work in the cowshed and in the farmer's office, but it is time well spent, for it leads to more milk and a better herd.

On Silage.—Oats and peas for silage should be cut when in the early flowering stage. When cut do not allow the crop to wilt for too long, the drier it becomes the more difficult it is to pack and bad packing may lead to mouldy or overheated silage. It is essential to tread the crop down well in the silo and to allow it to heat to about 100° F. before resuming filling. Molasses are not absolutely necessary for ensiling this crop and should be reserved for making silage from young grass. Aftermaths, particularly from one year leys, are excellent material for silage and rapid growth of grass can be obtained by applying 1 cwt. per acre of a nitrogenous fertiliser immediately the hay crop is removed. With a prospective shortage of feeding-stuffs next winter, no chance should be missed of making silage this autumn.

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

* * * * *

STANDARD OF EXAMINATIONS

Sir,—Being no longer on the Court of Examiners I feel at liberty to comment on a statement attributed to Mr. G. N. Gould in the Supplement of September 23rd. Speaking at the Special Meeting of Council, R.C.V.S., Mr. Gould is reported to have said that "when in 1940 he was an examiner, a suggestion was made to him that at certain colleges the standard was lower. He refused to let this affect him and they would find that in the results of the examination there was a reduction in the number of passes because he refused to lower the standard."

If that is a correct report it can only mean that at other times examiners did lower the standard, and would have done so on this occasion also, but for the fortunate presence of Mr. Gould. "An upright judge!"

On the occasion referred to Mr. Gould was acting as one of the examiners in surgery, and I was an examiner in medicine. The association between the examiners in medicine and in surgery is naturally a close one. So far as Mr. Gould's charge applies to medicine, on which I can speak with first-hand knowledge, I simply deny it. So far as it applies to surgery, I do not believe it. To the best of their ability, examiners, in my experience, have applied the same standard to all colleges and also between individual students.

Examiners are in a position of high trust, and it is a serious matter that Mr. Gould, while exalting himself, has impugned the honour of those who shared with him the trust of the Council. I regard his statements as a libel on a number of men whose professional attainments and personal integrity I hold in the highest esteem.

Yours faithfully,

Cruachan, DONALD CAMPBELL.
80, Hamilton Road, Rutherglen.
September 23rd, 1944.

* * * * *

VETERINARY EDUCATION: THE LOVEDAY REPORT

Sir,—With regard to the discussion *re* the merits of our "one portal system," I believe the matter was very fully thrashed out by R.C.V.S. Council at the time when the veterinary school was commenced by Liverpool University, combined with a strong effort to grant its own degrees.

As the years have passed Liverpool has proved an excellent school of training, but our stalwarts on the Council at that time stood firm, and personally I think it will be a terrible mistake to alter their decision.

Yours faithfully,

Newcastle, Staffordshire. WILLIAM TRIGGER.
September 24th, 1944.

* * * * *

A VETERINARY "BOOK CLUB"?

Sir,—Reading J. L. Linzell's clinical report in this week's *Record* I was struck by the number of references he quoted, and I am sure that he misses the luxury of being able to refer to the various veterinary works now that he has left the College.

A little while ago I needed some information on the dilution of semen and it was only through the courtesy of one of the drug firms that I was able to obtain it. The manager of the veterinary department of the firm was kind enough to have the more recent works on the subject abstracted for me.

Would it not be possible to form a "book club" which could obtain the main veterinary journals so that members could have access to them, or at least to the portions pertinent to the subjects in which they are interested?

I appreciate that it would be a big task, but feel sure that there are many members—especially those, like myself, recently qualified—who would be very grateful for the opportunity of learning what the more mature members of our profession are publishing.

The abstracts in the *Record* are a great help, but they cannot be adequate.

Yours faithfully,

Rosedene, Carsethorn, Kirkbean, PETER J. DALTON.
Nr. Dumfries.
September 18th, 1944.

[It is hoped that after the war the lending library service of the Central Library for Animal Diseases at the Royal College will be resumed.—*Editor.*]